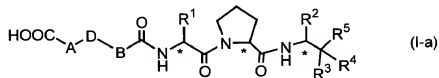


CLAIMS

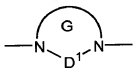
1. A heterocyclic compound of the formula (I-a):



- 5 wherein * means that the carbon atom marked with * is an asymmetric carbon atom,

A and B are the same or different and each is a lower alkylene group being optionally substituted by an oxo group,

D is a heteromonocyclic or heterobicyclic group of the following formula:



wherein D¹ is a methylene group or an ethylene group, and these groups may optionally be substituted by an oxo group, Ring G is a 5- to 14-membered, saturated or unsaturated, heteromonocyclic or heterobicyclic group optionally having other heteroatoms selected from a nitrogen atom, an oxygen atom and/or a sulfur atom, and said heterocyclic group being optionally substituted by a substituent T¹, in which T¹ is the same or different 1 to 3 groups selected from

- (i) an oxo group,
- (ii) a substituted or unsubstituted lower alkyl group,
- (iii) a substituted or unsubstituted amino group,
- (iv) a substituted or unsubstituted carbamoyl group,
- (v) a carboxyl group or a lower alkoxy carbonyl group,

(vi) a phenyl group being optionally substituted by a halogen atom, a lower alkoxy group or a lower alkyl group, and

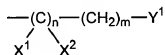
(vii) a substituted or unsubstituted lower alkylcarbonyl group,

R^1 and R^2 are the same or different and each is a lower alkyl

group,

R^3 and R^4 are different from each other, and each is a hydrogen atom or a hydroxy group, or both combine together to form an oxo group,

R^5 is a group of the formula:



wherein X^1 and X^2 are a halogen atom, Y^1 is a hydrogen atom, a halogen atom, a lower alkoxy carbonyl group, a lower alkylaminocarbonyl group, an aralkylaminocarbonyl group, an aralkyloxycarbonyl group, a lower alkylcarbonyl group, or an aralkylcarbonyl group, or a group of the following formula:



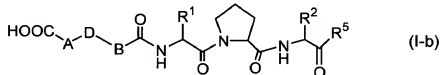
wherein U is an oxygen atom or a sulfur atom, Q is a vinylene group or an orthophenylene group being optionally substituted by T^2 , T^2 is 1 to 3 groups selected from a halogen-substituted or unsubstituted lower alkyl group, a lower alkoxy group, a lower alkylsulfonyl group, a lower alkylcarbonyloxy group and an amino group being optionally substituted by a lower alkyl group,

n is 0, 1 or 2, and

m is an integer of 0 to 5,

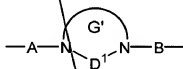
or its ester, or a salt thereof.

2. The heterocyclic compound according to claim 1, which is a compound of the following formula (I-b):



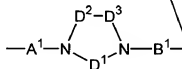
5 wherein A, B, D, R¹, R² and R⁵ are as defined in claim 1, or its ester, or a salt thereof.

6 23. The heterocyclic compound according to claim 1 or claim 2, wherein the group of the formula: -A-D-B- is a group of the following formula:



7 wherein A, B and D¹ are as defined in claim 1, Ring G' is a 5- to 9-membered, saturated or unsaturated heteromonocyclic group having 1 to 3 of other heteroatom selected from a nitrogen atom, an oxygen atom and/or a sulfur atom, and said heteromonocyclic group may have 1 to 3 substituents T¹ which are as defined in claim 1, or its ester, or a salt thereof.

4. The heterocyclic compound according to claim 1 or claim 2, wherein the group of the formula: -A-D-B- is a group of the following formula:



20 wherein A¹ is a methylene group or a group of the formula: -CH₂CO-, B¹

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Compound 4: 2-[3-carboxymethyl-2,4-dioxo-1-pyrimidinyl)-

acetyl-L-valyl-N-[(1S)-3-benzylamino-1-isopropyl-2,3-dioxopropyl]-L-prolinamide,

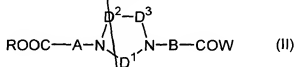
Compound 5: 2-(4-carboxymethyl-2,5-dioxo-1-piperazinyl)acetyl-L-valyl-N-[(1S)-2-(2-benzoxazolyl)-1-isopropyl-2-oxoethyl]-L-prolinamide;

Compound 6: 2-(3-carboxymethyl-2,5-dioxo-1-imidazolidinyl)-acetyl-L-valyl-N-[(1S)-3,3,3-trifluoro-1-isopropyl-2-oxopropyl]-L-prolinamide; and

Compound 7: [[4-(2-carboxyacetyl)-1-piperazinyl]malonyl]-L-valyl-N-[(1S)-2-(2-benzoxazolyl)-1-isopropyl-2-oxoethyl]-L-prolinamide.

7. A mixture comprising 90 % or more of 2-(3-carboxymethyl-2-oxo-1-imidazolidinyl)acetyl-L-valyl-N-[(1S)-3,3,3-trifluoro-1-isopropyl-2-oxopropyl]-L-prolinamide (Compound 1), or a salt thereof, and the remaining % consisting substantially of a stereoisomer of Compound 1 or a salt thereof.

8. A heterocyclic compound of the following formula (II):



wherein A and B are the same or different and each is a lower alkylene group being optionally substituted by an oxo group,

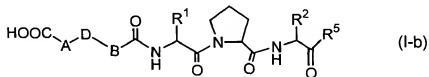
D¹ is a methylene group or ethylene group being optionally substituted by an oxo group,

D² and D³ are the same or different and each is a vinylene group being optionally substituted by a lower alkyl group, or a methylene group being optionally substituted by an oxo group or a lower alkyl group,

R is a protecting group for carboxyl group,

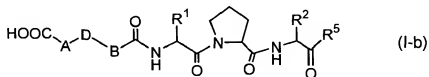
W is a hydroxy group, a halogen atom or a residue of an active carboxylic acid ester, provided that one of A, B, D¹, D² and D³ is a group being substituted by an oxo group, and both D² and D³ should not simultaneously be a vinylene group being optionally substituted by a lower alkyl group, or a salt thereof.

9. A human neutrophilic elastase inhibitor containing as the active ingredient a compound of the following formula (I-b):



wherein A, B, D, R¹, R² and R⁵ are as defined in claim 1, or a pharmaceutically acceptable salt thereof.

10. A pharmaceutical composition containing as an active ingredient a compound of the following formula (I-b):



wherein A, B, D, R¹, R² and R⁵ are as defined in claim 1, or a pharmaceutically acceptable salt thereof.